



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,546	02/18/2006	Henning Sirringhaus	Q89250	6854
23373 7590 05/06/2009				
SUGHRUE MION, PLLC				
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800				
WASHINGTON, DC 20037				
EXAMINER				
BLUM, DAVID S				
ART UNIT		PAPER NUMBER		
2813				
MAIL DATE		DELIVERY MODE		
05/06/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,546

Applicant(s)

SIRRINGHAUS ET AL.

Examiner

DAVID S. BLUM

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

This action is in response to the response filed 10/28/08.

DETAILED ACTION

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The disclosure is objected to because of the following informalities: The layout for the specification should follow the guidelines as suggested.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 12-19, 21-22, 32-38, 44-51 are rejected under 35 U.S.C. 102(b) as being anticipated by Sirringhaus et al. (WO 01/46987 cited by applicant).

Regarding claims 1 and 2, Sirringhaus et al., figs. 7(a)-7(c) and related text on pages 10-25 discloses the claimed method for forming on a substrate an electronic device including at least one electrically conductive material and one semiconductive material deposited onto the substrate from respective liquids including the steps of forming on the substrate surface 1 a surface energy pattern that defines a first and second areas 12 spaced apart by a spacing area 10, and a third area of the substrate at least partly overlapping the first, second and spacing areas (fig. 7(a)); subsequently depositing the electrically conductive material (PEDOT) 13 on the substrate to form source/drain by applying the liquid comprising the electrically conductive material over the substrate (fig. 7(b)); and depositing the semiconductive material 4 (F8T2) on the substrate to form an active island of a transistor by applying the liquid comprising the semiconductor material over the substrate; wherein the surface energy pattern is such as to localize the electrically conductive material to the first and second areas and to

localize the semiconductive material to the third area; and the semiconductive material is deposited so as to extend over the third area continuously between the conductive material 13 in the first and second areas 12 and cover the whole spacing area (fig. 7(c)).

With respect to claim 3, page 24, third paragraph discloses the step of mechanically rubbing the polyimide layer 10 for a subsequent step of depositing the semiconducting polymer layer 4, therefore, the semiconductor material 4 is attracted more strongly to the spacing area 10 than to the first and second areas 12 which is covered by the conductive material 13.

In regard to claim 4, Sirringhaus teaches the semiconductive material is attracted more to the first and second areas than to the spacing area (page 22 last paragraph).

In regard to claim 5, the pattern includes an area surrounding the first and second areas and the spacing area.

Regarding claim 6, the pattern includes an area surrounding the fourth area.

With respect to claims 7, 8 and 9, see page 22, last paragraph.

With respect to claim 10, see page 23, first paragraph.

In regard to claims 12-13, see page 27.

With respect to claims 14-17, see page 23, third paragraph, Page 26, second paragraph.

Regarding claim 18, the surfaces of the first and second areas are the same.

Regarding claim 19, the first and second areas are formed on an exposed portion of material on the substrate.

With respect to claims 21-22, 32, and 44-47, since the same materials are used, they are inherently having the same characteristics.

Regarding claims 26-29, see page 23, paragraph 3.

With respect to claims 33-34, see page 28, first paragraph, and page 29, last paragraph.

With respect to claims 35-38, see pages 36, last paragraph to page 37, third paragraph.

With respect to claims 48-49, fig. 7(c) shows a further dielectric layer 5 deposited on top of the semiconductor material layer 4.

With respect to claims 50-51, see page 38, third paragraph.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 20, 23-25, 30-31 and 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siringhaus et al..

Siringhaus et al., figs. 7(a)-7(c) and related text on pages 10-25 discloses substantially the claimed method for forming on a substrate an electronic device except the channel length, thickness of substrate, and the process temperature; however, those limitations are considered to involve routine optimization while has been held to be within the level of ordinary skill in the art as noted in In re Aller 105 USPQ 233, 255 (CCPA 1955). One of ordinary skill in the requisite art at the time the invention was made would have selected suitable thickness range, width of space area and temperature range in the process for forming TFT of Siringhaus et al. in order to obtain the best result.

Regarding claim 20, Siringhaus does not explicitly teach a lower surface roughness in the first and second areas than in the regions surrounding the first and

Art Unit: 2813

second regions. However, Sirringhaus does teach treating these areas for different surface effects (hydrophilic/hydrophobic) and without evidence to the contrary, the surface roughness is considered to be a property of this treatment.

In regard to claims 39-43, see page 22 last paragraph. Sirringhaus teaches making areas of the surface hydrophobic or hydrophilic. Although not explicitly teaching repellent or more repellent, or of the same surface energy, this is the result of making areas hydrophobic or hydrophilic. Once it is known to pattern areas for hydrophobic or hydrophilic, it is obvious to do such in other areas.

Response to Arguments

Applicant's arguments filed 10/28/08 have been fully considered but they are not persuasive.

The applicant acknowledges the different format than suggested in USPTO guidelines.

The applicant argues that Sirringhaus does not teach using surface energy to localize material. However, Sirringhaus does use surface treatments to make the surface either hydrophobic or hydrophilic, and that reads on surface energy.

The applicant also argues in regard to what is routine optimization. The examiner holds that dimensions and temperature are of routine optimization.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (571)-272-1687) and e-mail address is David.blum@USPTO.gov .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Landau, can be reached at (571)-272-1731. Our facsimile number all patent correspondence to be entered into an application is (571) 273-8300.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David S Blum/

Primary Examiner, Art Unit 2813

May 5, 2009